

WHAT IS CLAIMED IS:

1. An imaging member comprising:
an optional supporting substrate;
a charge generating layer; and,
a charge transport layer deposited on the charge generating
5 layer, wherein the charge transport layer comprises a first charge transport
layer and at least one additional charge transport layer deposited thereon,
and wherein each of said charge transport layers comprises a film forming
polymer binder and a charge transport compound dispersed therein, wherein
the weight percent of charge transport compound in the additional charge
10 transport layer is less than the weight percent of charge transport compound
in the first charge transport layer.
2. The imaging member of **claim 1**, wherein the charge transport
compounds of the charge transport layers are the same.
3. The imaging member of **claim 1**, wherein the charge transport
compounds of the charge transport layers are different.
4. The imaging member of **claim 1**, wherein the binder of the first
charge transport layer is the same as the binder of at least one of the
additional charge transport layers.
5. The imaging member of **claim 1**, wherein the binder of the first
charge transport layer is different than the binder of at least one of the
additional charge transport layers.

6. The imaging member of **claim 1**, wherein the weight percent of the charge transport compound of at least one of the additional charge transport layers is about 10% less than the weight percent of the charge transport compound of the first charge transport layer.

7. The imaging member of **claim 1**, wherein the weight percent of the charge transport compound of at least one of the solid solution of the additional charge transport layers is about 20% less than the weight percent of the charge transport compound of the first charge transport layer.

8. The imaging member of **claim 1**, wherein the weight percent of the charge transport compound of at least one of the additional charge transport layers is about 30% less than the weight percent of the charge transport compound of the first charge transport layer.

9. The imaging member of **claim 1**, wherein the weight percent of the charge transport compound of at least one of the additional charge transport layers is about 40% less than the weight percent of the charge transport compound of the first charge transport layer.

10. The imaging member of **claim 1**, wherein the imaging member further comprises an anti-curl layer.

11. The imaging member of **claim 1**, wherein the charge transport compound in one or more of the layers is dissolved in the film forming polymer to form a solid solution.

12. The imaging member of **claim 1**, wherein the charge transport compound in one or more of the layers is molecularly dispersed in the film forming polymer to form a solid solution.

13. The imaging member of **claim 1**, wherein the first charge transport layer comprises from about 40 to about 80 weight percent of charge transport compound based on the total weight of the layer and at least the upper layer of the additional charge transport layers comprise from about 25 to about 45 weight percent of the charge transport compound based on the total weight of the layer.

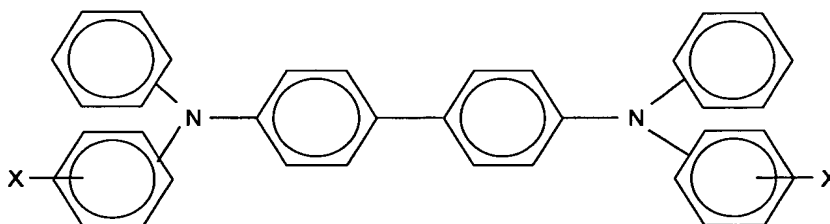
14. The imaging member of **claim 13**, wherein the amount of charge transport compound in the first charge transport layer comprises from about 50 to about 70 weight percent based on the total weight of the layer.

15. The imaging member of **claim 13**, wherein the amount of charge transport compound in at least the upper layer of the additional charge transport layers comprise from about 30 to about 40 weight percent based on the total weight of the layer.

16. The imaging member of **claim 1**, wherein the charge transport compound of one or more of the layers of the charge transport layer is an aryl amine based on the total weight of the layer.

17. The imaging member of **claim 16**, wherein the aryl amine is of the formula

FORMULA (I)



5

wherein X is selected from the group consisting of alkyl, alkoxy, hydroxyl, and halogen.

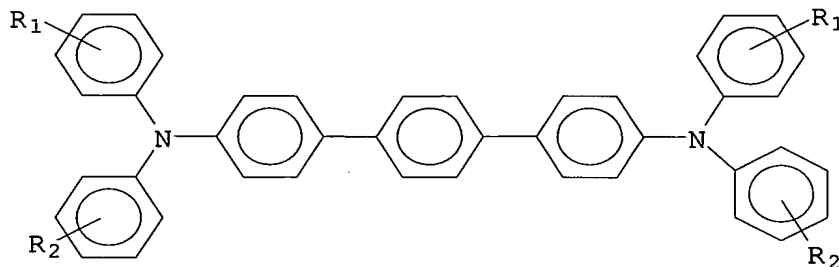
18. The imaging member of **claim 1**, wherein the charge transport compound of each of the charge transport layers is independently selected from the group consisting of triphenylmethane, bis(4-diethylamine-2-methylphenyl) phenylmethane, stilbene, hydrozone, tritolylamine; arylamine; enamine phenanthrene diamine; N,N'-bis-(3,4-dimethylphenyl)-4-biphenyl amine; N,N',bis-(4-methylphenyl)-N,N'-bis(4-ethylphenyl)-1,1'-3,3'-dimethylbiphenyl)-4,4'diamine; 4-4'-bis(diethylamino)-2,2'-dimethyltriphenyl-ethane; N,N'-diphenyl-N,N'-bis(3-methylphenyl)-[1,1'-biphenyl]-4,4'diamine; N,N'-diphenyl-N,N'-bis(4-methylphenyl)-1,1'-biphenyl-4,4'diamine; N,N'-diphenyl- N,N'-bis (alkylphenyl)-1,1'-biphenyl-4,4-diamine; and, N,N'-diphenyl-N,N'-bis(chlorophenyl)-1,1'-biphenyl-4,4'-diamine.

19. The imaging member of **claim 16**, wherein the charge transport compound of each of the charge transport layers is independently selected from the group consisting of tritolylamine; arylamine; enamine phenanthrene diamine; N,N'-bis-(3,4-dimethylphenyl)-4-biphenyl amine; N,N',bis-(4-methylphenyl)-N,N'-bis(4-ethylphenyl)-1,1'-3,3'-dimethylbiphenyl)-4,4'diamine; 4-4'-bis(diethylamino)-2,2'-dimethyltriphenylmethane; N,N'-diphenyl-N,N'-bis (3-methylphenyl)-[1,1'-biphenyl]-4,4'diamine; N,N'-diphenyl-N,N'-bis(4-methylphenyl)-1,1'-biphenyl-4,4'diamine; N,N'-diphenyl-N,N'-bis (alkylphenyl)-1,1'-biphenyl-4,4-diamine; and, N,N'-diphenyl-N,N'-bis(chlorophenyl)-1,1'-biphenyl-4,4'-diamine.

20. The imaging member of **claim 1**, wherein the charge transport compound of at least one of the layers of the charge transport layer is a terphenyl diamine.

21. The imaging member of **claim 20**, wherein the terphenyl diamine is of the formula

FORMULA (II)



- 5 wherein R1 is an alkyl which optionally contains from 1 to about 10 carbon atoms and R2 is an alkyl which optionally contains from 1 to about 10 carbon atoms.

22. The imaging member of **claim 21**, wherein the terphenyl diamine is selected from the group consisting of N,N'-bis(4-methylphenyl)-N,N'-bis[4-(1-butyl)-phenyl]-[p-terphenyl]-4,4''-diamine, N,N'-bis(3-methylphenyl)-N,N'-bis[4-(1-butyl)-phenyl]-[p-terphenyl]-4,4''-diamine, N,N'-bis(4-t-butylphenyl)-N,N'-bis[4-(1-butyl)-phenyl]-[p-terphenyl]-4,4''-diamine, N,N',N'',N'''-tetra[4-(1-butyl)-phenyl]-p-terphenyl-4,4''-diamine, and N,N',N'',N'''-tetra[4-t-butyl-phenyl]-[p-terphenyl]-4,4''-diamine.

23. The imaging member of **claim 1**, wherein the binder is selected from the group consisting of polyesters, polyvinyl butyrals, polycarbonates, polystyrene, and polyvinyl formats.

24. The imaging member of **claim 23**, wherein the binder is a polycarbonate having a weight average molecular weight of from about 20,000 to about 100,000.

25. The imaging member of **claim 24**, wherein the polycarbonate is selected from the group consisting of poly(4,4'-isopropylidene diphenyl carbonate), poly(4,4'-diphenyl-1,1'-cyclohexane carbonate), or a polymer blend of both.

26. The imaging member of **claim 1**, wherein the total thickness of the layers of the charge transport layer is from about 10 micrometers to about 100 micrometers.

27. The imaging member of **claim 26**, wherein the total thickness of the layers of the charge transport layer is from about 20 micrometers to about 60 micrometers.

28. The imaging member of **claim 26**, wherein the thickness of each of the layers of the charge transport layer is the same.

29. The imaging member of **claim 26**, wherein the thickness of each of the layers of the charge transport layer is different.

30. The imaging member of **claim 1**, wherein the photogenerating layer comprises photogenerating particles optionally dispersed in a polymer matrix.

31. The imaging member of **claim 30**, wherein the photogenerating particles comprise Type V hydroxygallium, phthalocyanine, x-polymorph metal free phthalocyanine, or chlorogallium phthalocyanine photogenerating pigments dispersed in a matrix comprising aryl amine hole transport molecules and electron transport molecules.

5

32. The imaging member of **claim 30**, wherein the photogenerating layer comprises from about 10 percent by volume to about 90, percent by volume of the photogenerating pigment which is dispersed in about 10 percent by volume to about 90 percent by volume of a polymer matrix.

33. The imaging member of **claim 30**, wherein the photogenerating layer comprises from about 20 percent by volume to about 30 percent by volume of the photogenerating pigment which is dispersed in about 70 percent by volume to about 80 percent by volume of a polymer matrix.

34. The imaging member of **claim 30**, wherein the photogenerating layer has a thickness of from about 0.1 micrometers to about 5.0 micrometers.

35. The imaging member of **claim 1**, wherein the supporting substrate is a biaxially oriented thermoplastic and optionally contains a conductive surface layer.

36. The imaging member of **claim 35**, wherein the supporting substrate comprises the same material as that of the conductive surface.

37. The imaging member of **claim 36**, wherein the supporting substrate is selected from the group consisting of copper, brass, nickel, zinc, chromium, stainless steel, conductive plastics, conductive rubbers, aluminum, semitransparent aluminum, steel, cadmium, silver, gold, zirconium, niobium, tantalum, vanadium, hafnium, titanium, nickel, chromium, tungsten, molybdenum, paper rendered conductive by the inclusion of a suitable material therein or through conditioning in a humid atmosphere to ensure the presence of sufficient water content to render the material conductive, indium, tin, and metal oxides.

38. The imaging member of **claim 1**, wherein the thickness of the supporting substrate is from about 50 micrometers to about 3,000 micrometers.

39. The imaging member of **claim 36**, wherein the thickness of the supporting substrate is from about 75 micrometers to about 200 micrometers.

40. The imaging member of **claim 1**, wherein one or more of the charge transport layers comprise between about 20 weight percent to about 80 weight percent of the charge transport compound molecularly dispersed in a binder.

41. The imaging member of **claim 1**, wherein one or more of the additional layers of the charge transport layer comprise between about 20 weight percent to about 45 weight percent of the charge transport compound dissolved in a binder.

42. The imaging member of **claim 1**, wherein one or more of the additional layers of the charge transport layer comprise between about 25 weight percent to about 40 weight percent of the charge transport compound molecularly dispersed in a binder.

43. A charge transport component composition comprised of a first charge transport layer and a second charge transport layer deposited thereon and in contact therewith, wherein each of said charge transport layers comprises charge transport components molecularly dispersed in a binder to
5 form a solid solution, wherein the weight percent of charge transport components in the second charge transport layer is less than the weight percent of the charge transport components in the first charge transport layer.

44. The dual charge transport layer of **claim 43**, wherein the weight percent of charge transport components of the solid solution of the second charge transport layer is about 10% less than the weight percent of the charge transport components of the first charge transport layer.

45. The dual charge transport layer of **claim 43**, wherein the weight percent of charge transport components of the solid solution of the second charge transport layer is about 20% less than the weight percent of the charge transport components of the first charge transport layer.

46. The dual charge transport layer of **claim 43**, wherein the weight percent of charge transport components of the solid solution of the second charge transport layer is about 30% less than the weight percent of the charge transport components of the first charge transport layer.

47. The dual charge transport layer of **claim 43**, wherein the weight percent of charge transport components of the solid solution of the second charge transport layer is about 40% less than the weight percent of the charge transport components of the first charge transport layer.

48. The dual charge transport layer of **claim 43**, wherein the charge transport components of one or both of the layers is selected from the group consisting of triphenylmethane, bis(4-diethylamine-2-methylphenyl) phenylmethane, stilbene, and hydrozone.

5

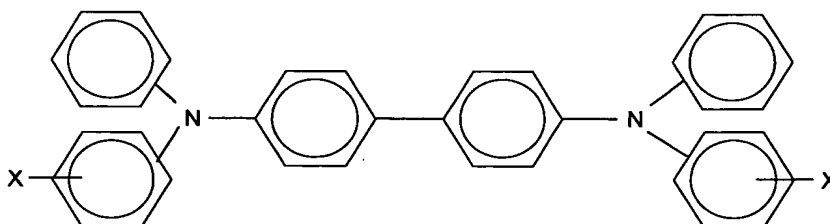
49. The dual charge transport layer of **claim 43**, wherein the charge transport components of one or both of the layers are selected from the group consisting of an aromatic amine comprising tritolylamine; arylamine; enamine phenanthrene diamine; N,N'-bis-(3,4-dimethylphenyl)-4-biphenyl amine; N,N',bis-(4-methylphenyl)-N,N'-bis(4-ethylphenyl)-1,1'-3,3'-dimethylbiphenyl)-4,4'diamine; 4-4'-bis(diethylamino)-2,2'-dimethyltriphenylmethane; N,N'-diphenyl-N,N'-bis(3-methylphenyl)-[1,1'-biphenyl]-4,4'diamine; N,N'-diphenyl-N,N'-bis(4-methylphenyl)-1,1'-biphenyl-4,4'diamine; N,N'-diphenyl-N,N'-bis(alkylphenyl)-1,1'-biphenyl-4,4-diamine; and N,N'-diphenyl-N,N'-bis(chlorophenyl)-1,1'-biphenyl-4,4'-diamine.

10

15

50. The dual charge transport layer of **claim 43**, wherein the charge transport components of one or both of the layers are selected from the aryl diamines of

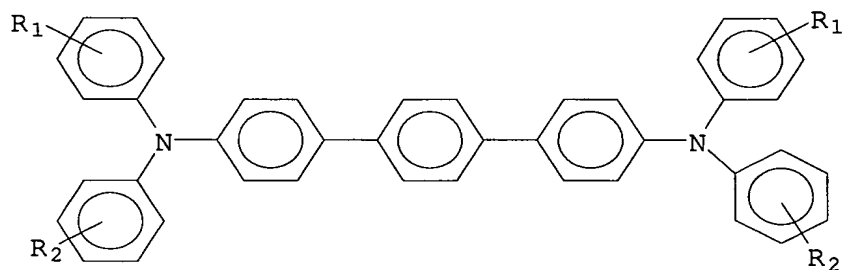
FORMULA (I)



wherein X is selected from the group consisting of alkyl, alkoxy, hydroxyl, and halogen.

51. The dual charge transport layer of **claim 43**, wherein the charge transport components of one or both of the layers are selected from the terphenyl diamines of

FORMULA (II)



wherein R₁ is an alkyl which optionally contains from 1 to about 10 carbon atoms and R₂ is an alkyl which optionally contains from 1 to about 10 carbon atoms.

52. The dual charge transport layer of **claim 51**, wherein R₁ and R₂ of Formula (II) are methyl groups attached at the ortho positions.